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10/530,112	04/01/2005	Yoshihiro Kawada	576P071	9651
42754	7590	06/14/2007		
NIELDS & LEMACK 176 EAST MAIN STREET, SUITE 7 WESTBORO, MA 01581			EXAMINER ARNBERG, MEGAN C	
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			1709	
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			06/14/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/530,112

Applicant(s)

KAWADA ET AL.

Examiner

Megan Arnberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date May 31, 2005
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

Claims 8-10 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot be dependent on any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 8-10 have not been further treated on the merits.

Claims 1-7 are objected to because of the following informalities: the word "ratio" is used, but a percentage is given as indicated by the "%" sign. See lines 10-12 of claim 1, lines 3-5 of claim 2, and lines 2-4 of claim 3. A possible amendment is replacing the word "ratio" in the above lines with the word "percentage". Also, it appears the application is a translation from Japanese. Minor grammar corrections such as including articles before the nouns would clarify the application. Appropriate correction is required. It is interpreted that a percentage is meant by the word "ratio" because the "%" sign is included.

Claims 1-7 are further objected to because it is unclear if the parentheses in claim 1 beginning in the first line found under formula (1) starting with "wherein" and ending with "integer" in line 5 under formula (1) and the parentheses around "C1-C5" starting in line 3 under formula (1) are meant to exclude the words they contain from the claim. It is interpreted that the words in parentheses are considered a part of the claim.

Claim 2 is objected to because in line 3 it includes the reference character "component A" which is not enclosed within parentheses. Reference characters

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corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m). It is suggested that parentheses be used around the letter "A".

Claim 2 is unclear. There are two possible interpretations. The first is that component (A) is precluded from the composition given in claim 1 so that the composition contains no epoxy resins of formula (1) ("except for the component (A)", line 3 of claim 2). The second interpretation is to further include in the composition given in claim 1 other epoxy resins so long as those epoxy resins are not of the formula of component (A) ("containing epoxy resins", line 2 of claim 2). If the first interpretation is taken, claim 2 would be objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. However, for the purpose of further examination, the second interpretation is taken. The composition, in addition to the epoxy resins of components (A) and (D), now contains another epoxy resin as long as it is not of formula (1). The latter part of the claim refers to bisphenol epoxy resins in the composition, which could not be present in the composition if component (A) was precluded.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is unclear as it is written. It is not evident if component (D) can be a novolak resin or is precluded from being a novolak resin as well as from being component (A). Also, it is unclear if the phrase "as curing agents" in the last line of claim 1 refers to only novolak resins or if the epoxy resin could also be considered a curing agent. For the purpose of further examination, claim 1 is considered to mean that component (D) is either an epoxy resin or a novolak resin. If it is an epoxy resin it cannot be the epoxy resins of component (A). Component (D) can be used as a curing agent in either case.

Claim 2 is unclear. Because of the two possible interpretations given in the Claim Objections section of this Office Action, it fails to particularly point out and distinctly claim the subject matter that the applicant regards as his invention.

The term "type" in claims 1-3, 6 and 7 is a relative term that renders the claims indefinite. See lines 3, and 11 of claim 1, line 4 of claim 2, line 3 of claim 3, line 3 of claim 6, and line 4 of claim 7. The term "type" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. See MPEP § 2173.05(b). The term "based" instead of "type" should be considered.

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Claims 1, 2 and 4 recite the phrase "based on the whole epoxy resin." See line 12 of claim 1 and the last lines of claims 2 and 4. It is unclear if this refers to the epoxy resin of component (A), component (D), the additional epoxy resins in claim 2, or the epoxy resin for sealing a photosemiconductor. For the purpose of further examination, it is interpreted to mean the epoxy resin of component (A) in claims 1 and 2, and the epoxy resin for sealing a photosemiconductor in claim 4.

Claims 1, 2, 4 and 5 recite the phrase "except for." See line 18 of claim 1, line 3 of claim 2, line 3 of claim 4, and line 3 of claim 5. It is unclear whether the intention is to preclude the component following the phrase or to further limit the component. For the purpose of further examination, component (D) as defined in claim 1 is considered to be either an epoxy resin or a novolak resin with the further limitation that if it is an epoxy resin, it is not the epoxy resin of component (A). The interpretation of claim 2 is given in the Claim Objections section of this Office Action. In claim 4 it is considered to mean that the epoxy resin composition in claim 1 or 3 contains component (D) at 20 to 90% by weight and component (A) at 10 to 80% by weight based on the epoxy resin composition for sealing a photosemiconductor. In claim 5 all epoxy resins other than component (A) are considered biphenyl backbone-containing phenol novolak resins, although component (A) still is included in the composition.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeyama et al. (JP 2001-002758) in view of Oda et al. (JP 08-311169), Imura (EP 0517337) and Akimoto et al. (JP 08-134175).

Umeyama et al. teaches the claimed composition comprising a bisphenol epoxy resin that can be bisphenol A (formula (1) where  $R_1 = H$  and  $R_2 = CH_3$ ) or bisphenol F (formula (1) where  $R_1$  and  $R_2 = H$ ) (Patent Abstracts of Japan and translation, pg. 3 paragraph 6), an annular terpene compound in which one molecule terpene is reacted with two phenols resulting in a bifunctional curing agent (translation pg. 5 paragraph

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12), an imidazole compound as a curing accelerator (translation pg. 6 paragraph 18), and one or more additional epoxy resins and/or novolak resins (translation pg. 4 paragraphs 5-11). Umeyama et al. also teaches the additional epoxy resins are biphenyl frame phenol novolak resins (translation pg. 4 paragraph 7).

Umeyama et al. does not teach the lower molecular weight epoxy resins of component (A) where  $n = 0, 1$ , or  $2$  to be 10% by weight or more based on the whole epoxy resins. However, Oda et al. teaches a biphenyl epoxy resin in an epoxy resin composition where all of the biphenyl epoxy resin has  $n = 0$  (Table 1 and formula 1). Umeyama et al. and Oda et al. are combinable because they are both concerned with the same field of endeavor, namely an epoxy resin composition for sealing a semiconductor device cured with a terpene backbone phenolic resin. At the time of invention a person of ordinary skill in the art would have found it obvious to combine the low molecular weight molecules of Oda et al. with the composition of Umeyama et al. and would have been motivated to do so to decrease the viscosity of the resin.

Umeyama et al. also does not teach the lower molecular weight molecules of component (A) to be 15-50% by weight based on the whole component (A). However, Akimoto et al. teaches a bisphenol A epoxy resin with an epoxy equivalent weight at 200-2000 (Patent Abstracts of Japan and translation paragraph 22). Therefore, the average  $n$  value should be between 0.2 and 13 based on the possible molecular weights of these epoxy equivalent weights. If 80% of the epoxy resin has  $n = 10$ , the average  $n$  will be 8.2 when 20% of the mixture is a low molecular weight molecule with  $n = 1$ . Umeyama et al. and Akimoto et al. are combinable because they are both

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concerned with the same field of endeavor, namely a bisphenol epoxy resin composition cured with a terpene backbone phenolic resin. At the time of invention a person of ordinary skill in the art would have found it obvious to combine the low molecular weight molecules of Akimoto et al. with the composition of Umeyama and would have been motivated to do so to decrease the viscosity of the resin.

Additionally, Umeyama et al. does not teach component (D) to be 20-90% by weight of the composition and component (A) to be 10-80% by weight of the composition. However, Imura teaches epoxy resins that are not of formula (1) (component (D)) at 59.2% and epoxy resins of the formula (1) (component (A)) at 40.8% (Table 1, examples 2, 10 and 11). Umeyama et al. and Imura are combinable because they both are concerned with the same field of endeavor, namely bisphenol epoxy resins sealed with a cyclic terpene backbone phenolic resin. At the time of the invention a person of ordinary skill in the art would have found it obvious to combine the amounts of compositions in Imura with the composition in Umeyama et al. and would have been motivated to do so because as Imura says on page 2 lines 20-21, the cured product will have low water absorption and good solder heat resistance

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/574,755 in view of Akimoto et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application has

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all of the components except for component (A) that are included in claim 1 of the examined application. However Akimoto et al. discloses an epoxy resin with a bisphenol A epoxy (formula (2) where  $R_1 = H$  and  $R_2 = CH_3$ ) as well as an epoxy resin having two or more epoxy groups (translation paragraph 14), and an annular terpene compound containing phenols (translation paragraph 18). At the time of the invention a person having ordinary skill in the art would have found it obvious to add a bisphenol A epoxy to the composition in application 10/574,755 and would have been motivated to do so because bisphenol A epoxy resins are widely available and inexpensive. Because the claim language of the copending application states, "comprises" component (A) of the instant application claim 1 could be added to the composition without affecting the scope of the claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megan Arnberg whose telephone number is (571) 270-3292. The examiner can normally be reached on Monday - Friday 7:30-5:00 EST.

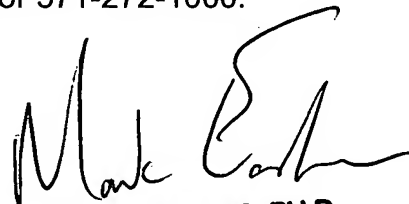
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Megan Arnberg  
6/8/07

MCA

  
**MARK EASHOO, PH.D**  
**PRIMARY EXAMINER**

8/Jun/07